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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PAPPAS, PETER	
ART UNIT	**PAPER NUMBER**
2671	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/790,253	AGUERA Y ARCAS, BLAISE	
	Examiner	Art Unit	
	Peter-Anthony Pappas	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-19,23-28 and 33-41* is/are rejected.

7)☒ Claim(s) *9,20-22,29-32 and 42-44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 9, 20-22, 29-32 and 42-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the respective claim objections and to include all of the limitations of the base claim and any intervening claims.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s): rendering tiles in foveated order; rendering vector data and non vector data using separate algorithms. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing

date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 2 is objected to because of the following informalities: it is believed the claim langue "...said navigation comprises one of more of the..." (line 1) was intended to read "...said navigation comprises one or more of the...". Appropriate correction is required.

4. Claim 29 is object to because there is lack of support for "...said varying over time results in asymptotic convergence toward a target value" (lines 1-2) in the descriptive part of the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, "...rendering vector data and non vector data using separate algorithms to display said final image" (lines 3-4), which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make

and/or use the invention. Said separate algorithms are is not described and thus it is unclear what said separate algorithms comprise mathematically.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 21-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 21 makes reference to the weights of claim 20, however claims 21 is not dependent upon claim 20. Therefore, the respective language of claims 19-20 is considered incorporated into claim 21.

9. Claims 43-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 43 makes reference to the weights of claim 19, however claims 43 is are not dependent upon claim 20. Therefore, the respective language of claims 19-20 is considered incorporated into claim 43.

10. Claims 16, 25, 40 and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The correct parent claims for claims 16, 25, 40 and 45 are unclear. For the purposes of art rejection said claims are considered to dependent upon claims 14, 24, 39 and 39 respectively, as was indicated during an interview on 6/16/05 with the Applicant. Appropriate correction is required.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1-6, 10-13, 17-19, 23-24, 26-28, 39, 40-41 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Schmidt et al. (U.S. Pub. No. 2004/0128070 A1).

13. In regards to claim 1 Schmidt et al. teaches a system for providing 3D visual navigation for a mobile unit that includes a location calculation unit for calculating an instantaneous position of the mobile unit, a viewpoint control unit for determining a viewing frustum based on the instantaneous position of the mobile unit, a scenegraph manager in communication with at least one geo-database that obtains geographic object data associated with the viewing frustum from the at least one geo-database and generates a scenegraph that organizes the obtained geographic object data, and a scenegraph renderer which graphically renders the scenegraph as three-dimensional

depiction in real time. To enhance the realism of the depiction, the present invention provides a method for blending images of different resolutions pertinent to the viewing frustum in order to reduce unevenness and abrupt changes in the resulting depiction which would otherwise occur as the mobile unit moves closer toward, or further away from the depicted geographic area (p. 1, ¶ 5-6).

Schmidt et al. teaches that two data structures may be used as a guide for loading the landmark objects on-demand. The first data structure, referred to as the Resource Index File or simply the "RIF file", may provide storage for "meta-data" of the landmark objects. The second data structure, referred to as the Level of Detail file or simply the "LOD file", may store "actual data" pertaining to the landmark objects in multiple levels of detail. The RIF and/or the LOD file may be stored, for example, in a storage medium and/or computer memory (p. 3, ¶ 40; p.6, ¶ 58).

Figs. 8A, 8B, 8C and 8D illustrate blended multiresolution images using gray scale image aerial texture views of a coastal area at various spatial resolutions. Fig. 8A shows a texture blending of a coarse resolution image identified with a two digit marking (`01) and a finer higher resolution image identified with a four-digit marking (`0131). As shown, the identification for the higher resolution image (`0131) appears much smaller than the corresponding (`01) identification for the coarser image, indicating that the finer resolution image pertains to a smaller area than the coarser image and occupies only a fractional portion of the coarser image area. As the observer zooms in (shown in Fig. 8B) and observes a smaller area of the coastline, the coarser image gradually fades away and the higher level image completely covers the field of vision with the marking

`0131 larger and sharply in focus. As we zoom in further, as depicted in Fig. 8C, the `0131 marking gradually fades away, while markings for the next higher resolution level (`013131) are shown gradually emerging along with detailed features of the area such as roads 601a, 601b. Fig. 8D shows the highest resolution (finest detail) texture in which the marking `013131 dominates the field of vision. In this manner, the higher resolution images are gradually brought into focus while the coarser images fade, achieving a smooth transition that appears realistic (p. 7, ¶ 68-69; 72-73).

It is noted said system is considered to perform the method.

14. In regards to claim 2 the rationale disclosed in the rejection of claim 1 is incorporated herein (p. 1, ¶ 5-6; p. 7, ¶ 68-69; 72-73). It is noted that zooming into said coastline is considered a form of navigation wherein said navigation comprises dynamic spatial distortion.

15. In regards to claim 3 the rationale disclosed in the rejection of claim 1 is incorporated herein (p. 7, ¶ 68-69; 72-73). It is noted that while the claim language discloses generating an intermediate final image said language does not disclose displaying said image.

16. In regards to claim 4 the rationale disclosed in the rejection of claim 1 is incorporated herein (p. 7, ¶ 68-69; 72-73).

17. In regards to claim 5 Schmidt et al. teaches that as a user navigates the system, the nodes within the run-time tree-like data structure may be dynamically added and deleted as needed by retrieving the appropriate information from the RIF file. Once a node is added, the actual data corresponding to any attached tiles may be fetched from

the LOD file. In particular, the TILEID provides an index to the tile data and a corresponding file pointer provides access to the feature data. Once the feature data is accessed, a further component of the navigational system (shown in Fig. 3), the scenegraph rendering module 60, repeatedly displays all of the objects in the scenegraph based on their geometric and appearance information (p. 6-7, ¶ 65-66; p. 4-5, ¶ 47-52; Fig. 5A).

18. In regards to claim 6 Schmidt et al. teaches wherein each LOD is comprised of tiles and a final image and a intermediate final image are displayed by using tiles from several LODs displayed as composite tiles (p. 4-5, ¶ 48-52; Fig. 5A). The rationale disclosed in the rejection of claim 1 is incorporated herein.

19. In regards to claim 10 Schmidt et al. illustrates vector (Fig. 2A, 2B, 2C) and non-vector (Fig. 8A, 8B, 8C, 8D) data for visual content. Figs. 2A, 2B and 2C are considered to comprise computer generated data, while Figs. 8A, 8B, 8C and 8D are considered to comprise photographic data. It is noted that vector data is considered computer generated data which comprise lines and non-vector data is considered image or photographic data as is disclosed by the Applicant (Specification, p. 5, ¶ 8).

20. In regards to claim 11 Schmidt et al. wherein said plurality of LODs are generated at a remote terminal and an intermediate and final images are generated at a locally viewable terminal (p. 2-3, ¶ 33; Fig. 3).

21. In regards to claim 12 the rationale disclosed in the rejection of claim 1 is incorporated herein.

22. In regards to claim 13 the rationale disclosed in the rejection of claim 4 is incorporated herein.

23. In regards to claim 17 Schmidt et al. teaches that a graph of the blending factor (contribution/weight) used for each of the three resolution levels as a function of distance is shown in Fig. 10. The rationale disclosed in the rejection of claim 4 is incorporated herein.

24. In regards to claim 18 the rationale disclosed in the rejection of claim 1, specifically p. 7, ¶ 73, is incorporated herein.

25. In regards to claim 19 the rationale disclosed in the rejection of claim 1, specifically p. 7, ¶ 73, is incorporated herein. It is noted that said claim language does not disclose that the assigning of a plurality of weights to a given tile occurs simultaneously.

26. In regards to claim 23 the rationale disclosed in the rejection of claim 1, specifically p. 7, ¶ 73, is incorporated herein.

27. In regards to claim 24 the rationale disclosed in the rejection of claim 5, specifically Fig. 5A, is incorporated herein. It is noted the tiles illustrated in Fig. 5A are considered to be arranged so that edges of said tiles in said LODs do not substantially align.

28. In regards to claim 26 Schmidt et al. teaches that a graph of the blending factor (contribution/weight) used for each of the three resolution levels as a function of distance is shown in Fig. 10. The rationale disclosed in the rejection of claim 1 is incorporated herein.

29. In regards to claim 27 Schmidt et al. teaches that a graph of the blending factor used for each of the three resolution levels as a function of distance is shown in Fig. 10. At a large distance from the viewed object (z0), the blending factor (opacity level) for resolution level 0 is at a maximum while the blending factors for levels 1 and 2 are zero, indicating that only the texture at level 0 is used to render the viewed image. As the observer moves closer to the object/area from distance z0 to distance z1, the blending factor for resolution level 0 decreases and the blending factor for resolution level one gradually increases, and is blended in to the viewed image. As the observer moves toward an even closer distance z2, the blending factor for resolution level 2 gradually increases toward a maximum level, the blending factor for resolution level 1 gradually decreases after having reached a maximum level at some distance between z1 and z2, and the blending factor for resolution level 0 decreases to zero. As shown, the gradual changes in the respective blending factors for the three different resolution levels provides a continuum of resolutions at all distances across all levels of resolution (p.7, ¶ 73).

30. In regards to claim 28 the rationale disclosed in the rejection of claim 27 is incorporated herein. It is noted that the combined opacity of each of said resolution levels after the final resolution level has been reached is considered to be less then one hundred percent as only the final resolution level is at one hundred percent after the final resolution level has been reached.

31. In regards to claim 39 the rationale disclosed in the rejection of claim 1, specifically p. 7, ¶ 73, is incorporated herein.

32. In regards to claim 40 the rationale disclosed in the rejection of claim 39 is incorporated herein.

33. In regards to claim 41 the rationale disclosed in the rejection of claim 39 is incorporated herein. It is noted that said claim language does not disclose that the assigning of a plurality of weights to a given tile occurs simultaneously.

34. In regard to claim 45 the rationale disclosed in the rejection of claim 39 is incorporated herein.

Claim Rejections - 35 USC § 103

35. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

36. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (U.S. Pub. No. 2004/0128070 A1), as applied to claims 1-6, 10-13, 17-19, 23-24, 26-28, 39, 40-41 and 45, in view of Foley et al. (Computer Graphics: Principles and Practice).

37. In regards to claim 7 Schmidt et al. teaches wherein the tiles of each LOD are made available in an order that depends at least in part upon the LOD in which the tile is (p. 5, ¶ 50-51; p. 7, ¶ 66; Fig. 5A, 5B). However, Schmidt et al. fails to explicitly teach utilizing a frame buffer for receiving said tiles.

Foley et al. teaches that a frame buffer is a well known means for storing graphics data in a given raster display system, wherein said data is to be displayed by

said raster display system (p. 166-170, § 4.3.1). It would have been obvious to one skilled in the art, at the time of the applicant's invention, to incorporation a frame buffer into the system taught by Schmidt et al., because a frame buffer is a well known storage means for storing display data in a raster system, such as that taught by Schmidt et al. (Fig. 3), and thus would provide a storage means for the display data taught by Schmidt et al. without requiring specialized hardware to be implemented.

38. Claims 8 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (U.S. Pub. No. 2004/0128070 A1) and Foley et al., as applied to claim 7, in view of Overall (Foveated Imaging: Applications to Image and Video Compression).

39. In regards to claim 8 Schmidt et al. teaches wherein viewable tiles are rendered first and within said viewable tiles are rendered in order of increasing resolution (p. 7, ¶ 70-71, 73). However, Schmidt et al. and Foley et al. fail to explicitly teach rendering tiles of a similar resolution tiles in foveated order. Overall teaches rendering tiles of a similar resolution tiles in foveated order (p. 10-14, specially p. 10, ¶ 2).

It would have been obvious to one skilled in the art, at the time of the applicant's invention, to incorporate the use of foveation into the system taught by Schmidt et al. and Foley et al., because the use of foveation can be of a great benefit in reducing transmission times where digital images must be transmitted over a slow channel as compression rations of over 80% have been achieved for foveation of large images (p. 20) thus allowing large amount of visual data to be transmitted within a system or between system without incurring large transmission times.

40. In regards to claim 33 the rationale disclosed in the rejection of claim 8 is incorporated herein.

41. In regards to claim 34 the rationale disclosed in the rejection of claim 33 is incorporated herein.

42. In regards to claim 35 the rationale disclosed in the rejection of claim 4 is incorporated herein.

43. Claims 14-16, 25 and 36-38, are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (U.S. Pub. No. 2004/0128070 A1).

44. In regards to claim 14 the rationale disclosed in the rejection of claim 1 is incorporated herein. However, Schmidt et al. fails to explicitly teach not forming a ratio of integers. Official Notice is taken that both the concept and advantage of the utilization and formation of non-integer values in a computer graphics system when a plurality of resolution levels are visually blended together dependent upon a ratio of said levels is well known and expected in the art. Therefore, it would have been obvious to one skilled in the art, at the time of the applicant's invention, that non integer values would be generated during the blending of a plurality of resolution levels, as taught by Schmidt et al., because it is conventional in computer graphics to utilize non-integer values for greater precision, which would thus allow for greater visual quality to be achieved.

45. In regards to claim 15 the rationale disclosed in the rejection of claim 6 is incorporated herein.

46. In regards to claim 16 the rationale disclosed in the rejection of claim 8 is incorporated herein.

47. In regards to claim 25 Schmidt et al. teaches three or more such LODs having increasing resolution and wherein said LODs are arranged in order of increasing resolution (p. 7, ¶ 73). The rationale disclosed in the rejection of claim 14 is incorporated herein.

48. In regards to claim 36 the rationale disclosed in the rejection of claim 10 is incorporated herein. Official Notice is taken that both the concept and advantage of utilizing separate algorithms for the rendering of vector and non-vector data is a computer graphics system is well known and expected in the art. Therefor, it would have been obvious to one skilled in the art, at the time of the applicant's invention, to utilize separate algorithms for the rendering said vector and non-vector data in the system taught by Schmidt et al., because it is conventional in computer graphics and to utilize separate algorithms for rendering vector and non-vector data which allows for said data to be computed with the most relevant algorithm instead of utilizing a single general purpose function to handle the calculators for different data types thus improving efficiency and speed.

49. In regards to claim 37 the rationale disclosed in the rejection of claim 5 is incorporated herein.

50. In regards to claim 38 Schmidt et al. teaches a processor to implement software to fade from an intermediate image (intermediate final image) to a final image (p. 7, ¶ 66). The rationale disclosed in the rejection of claim 4 is incorporated herein.

51. Claims 1-2, 12, 14, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al. (U.S. Patent No. 6, 348, 921 B1) in view of Battle et al. (U.S. Patent No. 6, 453, 330 B1).

52. In regards to claim 1 Zhao et al. teaches a system and method for displaying different portion of an object (visual content) in different level of detail (LODs), resulting in an object represented in a plurality of LODs. Each LOD includes one or more geometrical entities (i.e. polygons, edges). A data structure, such as a tree, is associated with the LOD representation, wherein said data structure specifies the relationship of each of the geometrical entities in an LOD to geometrical entities in different LODs. A determination is made whether to replace one geometrical entity with another geometrical entity (or entities) at a different LOD according to the morph weights generated (Abstract; column 1, lines 66-67; column 2, lines 1-21; Fig. 1).

Zhao et al. teaches that the present invention determines which polygons should be rendered (and therefore which LODs should be used) to display the object. This determination can be made when displaying the object for the first time, or after a variable affecting the display of the object (i.e. viewpoint, range, lighting) has changed (column 3, lines 62; column 4, lines 1-2). It is noted that changing said viewpoint is considered a form of navigation of said visual content.

The morph weights are used to determine whether to transition the display of each node to a finer LOD. According to one convention, a morph weight may have a value between COMPLETE-MORPH and NO-MORPH. A value of COMPLETE-MORPH implies that the corresponding edge is suited for display at a finer LOD. A

value of NO-MORPH implies that the edge is suited for display in the present LOD. It is thus noted that is a morph weight is assigned a value COMPLETE-MORPH or NO-MORPH that interpolation does not occur for said transition.

Zhao et al. fails to explicitly teach utilizing interpolation to arrive at said value between COMPLETE-MORPH and NO-MORPH. Battle et al. teaches a higher-precision bilinear interpolation circuit which provides additional detail for an array of texture elements or "texels" forming at a least a portion of a texture map (column 1, lines 46-49). It would have been obvious to one skilled in the art, at the time of the applicant's invention, to incorporation the interpolation circuit taught by Battle et al. into the system taught by Zhao et al., because while Zhao et al. teaches utilizing values between two known values Zhao et al. fails to teach a specific means by which to arrive at said values and Battle et al. provides said means which is easy to implement with standard hardware elements (column 2, lines 5-8) and aids in providing a more realistic image through the use of interpolation (column 1, lines 11-26).

53. In regards to claim 2 the rationale disclosed in the rejection of claim 1 is incorporated herein (column 3, lines 62; column 4, lines 1-2). It is noted that changing said viewpoint is considered dynamic spatial distortion.

54. In regards to claim 12 the rationale disclosed in the rejection of claim 1 is incorporated herein.

55. In regards to claim 14 Zhao et al. teaches that each LOD includes one or more geometrical entities (i.e. polygons, edges). A data structure, such as a tree, is associated with the LOD representation, wherein said data structure specifies the

relationship of each of the geometrical entities in an LOD to geometrical entities in different LODs. A determination is made whether to replace one geometrical entity with another geometrical entity (or entities) at a different LOD according to the morph weights generated (Abstract; column 1, lines 66-67; column 2, lines 1-21; column 4, lines 20-37). It is noted that a tile is considered a block (polygon) containing geometrical entities. Thus, it is noted said nodes of said data structure are considered tiles.

However, Zhao et al. and Battle et al. fail to explicitly teach not forming a ratio of integers. It is extremely well known in the field of computer graphics that when a plurality of resolution levels are visually blended together, dependent upon a ratio of said levels, that non integer values will be formed. Thus, it would have been obvious to one skilled in the art, at the time of the applicant's invention, that non integer values would be generated during the blending of a plurality of resolution levels, as taught by Zhao et al. and Battle et al., because it is conventional in computer graphics to utilize non-integer values for greater precision, which thus allows for greater visual quality to be achieved.

56. In regards to claim 26 the rationale disclosed in the rejection of claim 1 is incorporated herein.

57. In regards to claim 27 the rationale disclosed in the rejection of claim 1 is incorporated herein. It is noted said morph weight is considered an opacity level.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter-Anthony Pappas whose telephone number is 571-272-7646. The examiner can normally be reached on M-F 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PAP

ULKA J. CHAUHAN
PRIMARY EXAMINER